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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,532	07/30/2001	Hiroaki Nasu	Q63109	9048

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EXAMINER
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HRUSKOCI, PETER A

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 04/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/916,532

Applicant(s)

NASU ET AL.

Examiner

Peter A. Hruskoci

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-22 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-22, and 24-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 9, 10, 12-17, 20, 21, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. in view of Stiller or Grant et al. Cassidy et al. disclose (see col. 2 line 39 through col. 5 line 38) a process for treating a chromate waste liquid containing an organic component substantially as claimed. The claims differ from Cassidy et al. by reciting that the chromium precipitation accelerating agent comprises a calcium component is added to increase the pH of the chromate waste liquid to 10.3 or higher. It is submitted that the addition of calcium hydroxide to adjust the pH in Cassidy et al. would appear to accelerate chromium precipitation as in the instant invention. Stiller (see col. 5 line 53 through col. 6 line 39) and Grant et al. (see col. 5 line 37 through col. 6 line 49, and Example 4) disclose that it is known in the art to utilize a calcium component at a pH of 9-13 or 9-12 respectively, to aid in precipitating chromium from waste liquid. It would have been obvious to one skilled in the art to modify the method of Cassidy et al. by adding the recited calcium components and utilizing the recited pH in view of the teachings of Stiller or Grant et al., to aid in removing chromium from the waste liquid. The specific pH adjusting agent and pH utilized, the chromate concentration of the waste liquid, and neutralization of the waste liquid prior to disposal, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 7 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. in view of Stiller or Grant et al. as above, and further in view of Kreisler. The claims differ

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from Cassidy et al. as applied above by reciting that the precipitation accelerating agent comprises calcium chloride. Kreisler disclose (see col. 5 line 21 through col. 6 line 30) that it is known in the art to add calcium chloride in combination with sodium and calcium hydroxide to an industrial waste stream containing chromium and chelating agents, to aid in precipitating and removing chromium from the stream. It would have been obvious to one skilled in the art to modify the references as applied above by addition of calcium chloride in view of the teachings of Kreisler, to aid in precipitating and removing chromate from the waste liquid. The specific amount of calcium chloride utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 8 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. in view of Stiller or Grant et al. as above, and further in view of Leggett et al.. The claims differ from Cassidy et al. as applied above by reciting that the precipitation accelerating agent comprises magnesium chloride. Leggett et al. disclose (see col. 1 line 42 through col. 2 line 60) that it is known in the art to add magnesium chloride and sodium hydroxide to a waste stream containing chromium and chelating agents, to aid in precipitating and removing chromium from the stream. It would have been obvious to one skilled in the art to modify the references as applied above by addition of magnesium chloride in view of the teachings of Leggett et al., to aid in precipitating and removing chromate from the waste liquid. The specific amount of magnesium chloride utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. in view of Stiller or Grant et al. as above, and further in view of Gaughan et al.. The claim differs from

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Cassidy et al. as applied above by reciting that the waste liquid comprises a zinc component which is decreased at a second pH. Gaughan et al. disclose (see col. 3 line 19 through col. 4 line 73) that it is known in the art to add calcium and magnesium components to an aqueous waste stream containing chromium and zinc, to aid in precipitating and removing chromium and zinc from the stream. It would have been obvious to one skilled in the art to modify the references as applied above by treating a waste liquid comprising a zinc component in view of the teachings of Gaughan et al., to aid in precipitating and removing chromate and zinc from the waste liquid. The specific pH utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. in view of Stiller or Grant et al. and Leggett et al. as above, and further in view of Heskett. The claims differ from the references as applied above by reciting that the chromate waste liquid is neutralized, and a dissolved magnesium component is removed by reverse osmosis or ion exchange. Heskett disclose (see col. 2 lines 20-58) that it is known in the art to utilize ion exchange or reverse osmosis to aid in removing magnesium from water systems. It would have been obvious to one skilled in the art to modify the process of the references as applied above by utilizing the recited reverse osmosis or ion exchange in view of the teachings of Heskett, to aid removing dissolved magnesium from the waste liquid. The use of acid to effect neutralization prior to disposal, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Applicants submit that the Examples in the specification and Nasu Declaration establish

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unexpected results in precipitating a chromium component in chromate waste liquid by utilizing a first pH of 10.3 or higher. The Examples and Declaration have been carefully considered but fail to overcome the above rejections. It is submitted that these specific test conditions utilized to produce the results shown in the instant Examples are not commensurate with the scope of the instant claims. It is noted that Example 1 of the specification and the Experiments in the Declaration, include a specific test conditions such as a stirring time of 30 minutes, addition of sulfuric acid to adjust the pH to 8, flocculation with polyacrylamide, and sedimentation of the precipitated chromium. Claims 1 and 25 properly written to include these test conditions would be allowable.

Applicants argue that Cassidy et al., Kreisler, and Leggett, fail to suggest the significance of a first pH of 10.3 or higher as recited in the instant claims. It is submitted that Stiller and Grant et al. as applied above were used to teach that it is known in the art of water treatment to use a pH up to 12 or 13 respectively, to aid in precipitating chromium from a waste liquid with a calcium component such as calcium hydroxide. Furthermore, Grant et al. disclose that sodium, calcium, and magnesium hydroxides can be used as hydroxide solutions to adjust the pH and precipitate chromium contaminants.


Applicants arguments concerning Heskett and Gaughan et al. are based on the propriety of the combination of Cassidy et al. and Stiller or Grant et al.. This combination is deemed properly applied for reasons stated above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is (571) 272-1160. The examiner can normally be reached on Monday through Friday from 6:30AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Peter A. Hruskoci  
Primary Examiner  
Art Unit 1724

4/6/04